Samples

5. Write an equation of a line whose **x**-intercept is **-25** and is perpendicular to 2x-7y=28.

Original Question and Working

$2x-7y=28$

$\frac{-7y}{-7} = \frac{-2x+28}{-7}$

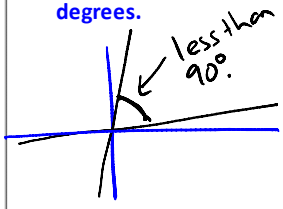
$y = \frac{2}{7}x - 4$

Ans. $y = \frac{7}{2}x - 25$

Supercorrection Form Name: Mac d' Anerror

#5 Convince me that you now understand the concept. Make connections and build on the problem if possible; be sure to explain the error(s) that you made.
Original 1/4 Supercorrection 4/4

I made two big mistakes in this problem. First, I didn't really understand what was true about the slopes of perpendicular lines. I thought you just took the reciprocal. I realize now that is not enough because both of my lines had positive slopes so the angle between them must have been less than 90 degrees.



Now I know I must take the opposite of the reciprocal, so in this problem the new slope should have been -7/2.
The second mistake was that I made the y-intercept -25, not the x-intercept. I think this was careless and I just did this out of habit (even though you kindly put the x-part in bold font. To make the x-intercept -25, it is a bit tougher than the y-intercept, so I will explain. I had to realize the x-intercept is really the point (-25, 0) and then I used the point-slope form.

Correct solution:

$2x-7y=28$ ← original line

$\frac{-7y}{-7} = \frac{-2x-28}{-7}$

$y = \frac{2}{7}x + 4$

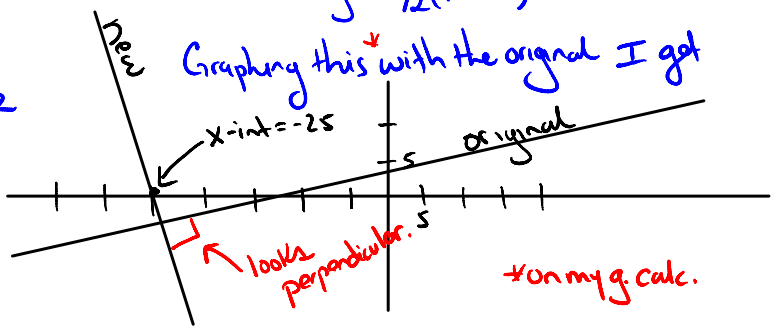
Slope of original is 2/7.
Slope of ⊥ line is -7/2

Also the line must pass through (-25,0)
Using pt slope form I get

$y-0 = -7/2(x+25)$

$y = -7/2(x+25)$

Graphing this with the original I got



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Original 1/4 Supercorrection 0/4

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Original 1/4 Supercorrection 0/4

I forgot that the slopes of ⊥ lines are negative reciprocals.

not an explanation / just a statement of fact.

Correct solution:

$y = -\frac{7}{2}x - 25$

still incorrect

Supercorrection Form **Name:**_____

#____ Convince me that you now understand the concept. Make connections and build on the problem if possible; be sure to explain the error(s) that you made.
Original 2/4 Supercorrection 2/4

I forgot that I had to take the negative reciprocal for the slope. I also used the y-intercept instead of the x-intercept. These were just careless errors.

Correct solution:

$2x-7y=28$

$-7y=-2x+28$

$y=\frac{2}{7}x-4$

point $(-25,0)$ on $y=\frac{-7}{2}x+b$

$0=\frac{-7}{2}(-25)+b$

$0=\frac{175}{2}+b$

$b=\frac{-175}{2}$

$y=\frac{-7}{2}x-\frac{175}{2}$

#____Convince me that you now understand the concept. Make connections and build on the problem if possible; be sure to explain the error(s) that you made.
Original 2 /4 Supercorrection 1 /4

not an explanation.

I forgot that the slopes of ⊥ lines are negative reciprocals.

Correct solution:

$2x-7y=28$

$-7y=-2x+28$

$y=\frac{2}{7}x-4$

point $(-25,0)$ on $y=\frac{-7}{2}x+b$

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